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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,141	07/09/2003	Raymond Reuven Boxman	27/216	8087

7590 11/14/2007
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EXAMINER

MAYEKAR, KISHOR

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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11/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/615,141	Applicant(s) BOXMAN ET AL.	
	Examiner Kishor Mayekar	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 56-82 is/are pending in the application.
- 4a) Of the above claim(s) 1-32 and 57-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 76-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the invention of species 2, claims 76-82, in the reply filed on 29 August 2007 is acknowledged. The traversal is on the ground(s) that "the claims identified by the Examiner as belonging to species 1 do not recite a system with a workpiece electrode arrangement comprising, or necessarily comprising, carbon content". This is not found persuasive because the independent claim 57 of species 1 clearly identifies the workpiece electrode arrangement as having carbon in the recitation "at least one of said workpiece electrode arrangement and said counter-electrode comprising carbon"

The requirement is still deemed proper and is therefore made FINAL.

Response to Arguments

2. Applicant's arguments with respect to elected claims 76-82 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102 and § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schroder et al. (US 6,777,639 B2). Schroder's invention is directed to radial pulsed arc discharge gun for synthesizing nanopowders. Schroder discloses that a system for producing nanopowder (read on the recited nanostructures) comprises a cathode electrode **32** of a metal such as aluminum, tantalum, titanium or zirconium; an anode electrode **31** separated from the cathode by a gap which

is filled with inert and/or reactive gases; and a pulsed power supply configured to produce an electrical discharge in the gap to melt, vaporize and ionize material from the two electrodes to create a high temperature, high density metal plasma that reacts with a surrounding gas to produce nanopowder (Fig. 3; col. 3, line 16 through col. 4, line 17). As the metal plasma is created, the metal plasma is inherently also of a nanostructure. As such Schroder anticipates the above claims. If there is a difference, it will be the limitation "to form at least one nanostructure in a first region of the surface of the cathode". Since the limitation is not a structure of the system, it cannot be given any patentable weight. Further, since Schroeder discloses that the two electrodes may not be contained within a chamber, it appears that the metal plasma and/or the produced nanopowder from the electrical discharge between the two electrodes read on the limitation.

As to the subject matter of claim 77, Schroder's metal plasma and nanopowder formed between the two electrodes met the limitation.

As to the subject matter of claims 79 and 80, since Schroder discloses that the pulse being of a short duration (abstract), the pulsed power supply may be of any of plural well known designs (col. 3, lines 36-39), and a pulse length of 10^{-3} second (Table III), it appears that Schroder's power supply is capable of producing the recited electrical pulse.

As to the subject matter of claim 81, since the limitation is not a structure of the system, it cannot be given any patentable weight. And since Schroder discloses in Table

III that the peak discharge power of 10^8 Watts, it appears that the electrical pulse is also of high amperage.

As to the subject matter of claim 82, since Schroder disclose that the electrode composition is the metal of the nanopowder being produced, the selection of any of known equivalent metals would have been within the level of ordinary skill in the art.

Response to Arguments

6. Applicant's arguments and Boxman declaration filed 21 May 2007 have been fully considered but they are not persuasive in view of the new ground of rejection as set forth in the above paragraph.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jiang et al. ("Pulsed Wire Discharge for Nanosize Powder Synthesis", IEEE Transactions On Plasma Science, Oct. 1998, pp. 1498-1501, vol. 26, No. 5), a reference cited in Schroder in col. 3, lines 24-31, discloses the forming of nanopowders of NiO from a pulsed power supply with a pulse length of 20 microsecond.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

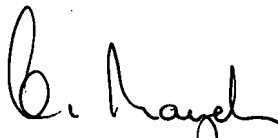
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information

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for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kishor Mayekar
Primary Examiner
Art Unit 1795